**MODIS Technical Team Meeting**
**Thursday, April 18, 2002**
**Building 33, Room E125**

Vince Salomonson chaired the meeting. Present were Bill Barnes, Jack Xiong, Wayne Esaias, Dorothy Hall, Steve Kempler, Skip Reber, and Robert Wolfe with John Weier taking minutes.

## 1.0 Upcoming Meetings

• AGU, Spring, May 28-Jun 1, Washington, D.C.
• AMS, Atmospheric Radiation and Atmospheric Physics, first week of June, Odgen, Utah.
• MODIS Outreach Workshop on Land Cover Variables, June 3-4, University of Maryland, College Park.
• IGARSS 2002, June 24-28, 2002 in Toronto (abstract deadline past)
• MODIS Outreach Workshop on MODIS Vegetation Variables (VI/LAI/FPAR/NPP), July 15-19th 2002, University of Montana, Missoula, MT
• MODIS Science Team Meeting, Tentative, July 22-24, 2002
• Remote Sensing of the Earth's Environment from Terra, a workshop at the International Summer School on Atmospheric and Oceanic Sciences, August 25-30, 2002, L'Aquila Italy
• 34TH COSPAR Scientific Assembly, October 10-19, 2002, in Houston, TX, (abstracts due 1 May)
• MODIS Outreach Workshop on Land Surface Radiation Products, October 24-25, 2002, Boston

## 2.0 Meeting Minutes

Barnes reported that Ken Anderson has described that the band-to-band registration (BBR) for Aqua MODIS is likely to change during launch. We'll have to measure the BBR on-orbit. MCST will use the SRCA data for this measurement. Wolfe said that the instrument does have an on-orbit focal plane adjustment capability. In general, it is possible to make a limited adjustment to the registration between focal planes in the scan direction that may improve some data products. Barnes said they can change it by one tenth of a pixel and that since it is a timing thing, it can only go in one direction. Xiong said that after three months everything would be stable. They will not be able to change BBR downtrack. Salomonson indicated that such adjustments are important to the land cover data products, in particular. Wolfe is looking at the impacts to geolocation accuracy. There is an examination ongoing as to how to handle dead detectors in Band 6 and use the functional ones at least to get 1-km observations. Even with this approach, there will be one stripe in the image of the 1-km aggregated Band 6 data due to the three consecutive dead detectors (1, 2, and 3).

Barnes reported that he had a meeting on writing the Terra formatter patches into the EEPROM. He says that the project is reluctant to do this on-orbit and they want to study it and run tests. If they see even the slightest hint that it might damage other parts of the sensor, they'll reject any plans. The EEPROMS have a problem at 2.5 kilorads total radiation dose and the question is how much do we have now? It's a one-word change we're looking for, but they are afraid it will spread throughout the EEPROM and overwrite other parts of the software. The rate of reset events is growing and 160,000 are occurring each day, and the Side A formatter may go bad some day. The event rate has increased by a factor of five in six months. Xiong added that they don't know when (or if) it will impact the science data. Esaias asked if they had any evidence whether it was going to fail gracefully or whether it was going to be a catastrophic failure and shut down both A- and B-Sides. Barnes replied that they have no evidence that they cannot shut down the A-side formatter and then turn the B-Side formatter on.

Barnes reported that MCST is working on this mirror-side scan-correlated noise. But every time the instrument shuts down and restarts (or in one case, open the nadir-aperture door) the instrument state and noise characteristics change somewhat.

Kempler reported that there have been some problems in data distribution. He said the Goddard DAAC needs to set up a new data pool plan and instructions on how to use the data pool. While it is good that

scientists are ordering more data, the data are getting queued too fast. Kempler explains that the problem is with the EDG and not WHOM.There have been a couple of instances where scientists have used a mechanism to program or automatically make data requests from the DAAC. People have realized there is a limit to the size of order they can put in on any one order, so they begin to put them in every thirty seconds automatically. It's much like a denial of service attack. The DAAC is going to work with these users and develop a mechanism to meet their needs without bogging down the DAAC systems.

Wolfe reported that production of the science products in MODAPS is three to four days behind real time. He said they want to keep the gap small since we're getting more users who want data close to real time.

Wolfe reported that MODAPS and the Goddard DAAC ran end-to-end tests of the Ocean reprocessing and are seeing rates of up to 8X or 9X. This means that reprocessing Oceans at a sustained rate of 6X or 7X was feasible. They are going to run another test of two 8-day periods to see if they cannot sustain a rate of at least 7X throughout the entire test.

Salomonson wondered why when Oceans reprocessing can achieve 7X, why then are Level 1B, Land, and Atmospheres reprocessing rates for collection 4 nearer to 2X?

Esaias explained that Oceans is only 0.4 of the combined higher-level data processing load. Also, the Goddard DAAC is not generating Level 1B for the Oceans reprocessing. They are pulling 1 km Level 1 data from the archive and sending them to MODAPS. . When we do Land and Atmosphere, the Goddard DAAC will also be reprocessing the Level 1 data; plus MODAPS also needs the 500-m and 250-m resolution Level 1B data. The bottleneck is generating the Level 1 data at 4X (1X for Terra forward processing plus 1X for Aqua forward processing plus 2X for Terra reprocessing). The Goddard DAAC may actually do better than that, but we have to look at the data and run tests.

Hall reports that with regard to her snow and ice data product there are several groups around the world doing comparison studies. Andrew Klein at Texas A&M University, in particular, has compared the NOHRSC (National Operational Hydrologic Remote Sensing Center) operational snow product and Snotel data with the MODIS snow and ice data product. The data products matched up well.

Esaias reports that Chuck Trees is going to the MERIS Science Team Meeting in the early part of May. He is putting together a presentation on lessons learned for MODIS Oceans along with Bob Evans. He expects greater cooperation with MERIS and maybe some involvement with MOBY. Esaias noted that the Japanese are requesting MOBY data. They may deploy a buoy of their own in the Gulf of Mexico in cooperation with Stennis and the Navy. Their buoy will mainly measure above-water measurements of reflectance and will primarily be used for glare and navigational purposes. MOBY is 20 meters down and so the measurements are different. The type of buoy the Japanese are deploying has a number of shading products to account for the water directly beneath the buoy. The calculations are much more complicated.

Esaias reported that the University of Miami is working with Don Olson with MODIS Direct Broadcast (DB) data derived from the Goddard Direct Broadcast site, and are thrilled with them. He says the resolution and the quality of the images are remarkable. Some of the fishing services groups are delighted. The MODIS data help them tremendously. The color and temperature resolution is better than that of its predecessors, and they can get DB data from the Miami receiving station cheaper and sooner than they can with SeaWiFS. With SeaWiFS there is a two-week embargo on the data. Dixon Butler (NASA HQ, GLOBE Project) showed the data to scientists working with the GLOBE education project and reported the reaction was very positive.

Esaias reports that MODIS has produced its first science test for Collection 4 data. He said it looks like we're still on schedule for processing for when planned.

## 3.0 Action Items

3.1 Discipline leads to meet to resolve the issue of beta-release code and science-quality code, and what we need to say about it.
Status: Open.

3.2 Technical team to discuss further the issue of predicted ephemeris data and how to improve it.
Status: Open.